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HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) FOR BENIGN INDICATIONS USING UMBILICAL CORD BLOOD UNITS (UCB) THAT WERE NOT DEPLETED OF RED BLOOD CELLS

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UCB is an attractive unrelated source for HSCT of benign indications; however, cell dosage is a critical factor for UCB HSCT. The red cell depletion (RCD) and post-thaw wash techniques that are widely used incur significant nucleated cell loss. Two strategies to minimize cell loss are to deplete plasma, but not the red blood cells (PD) during processing, and forego post-thaw wash. Eighteen thousand racially diverse PD UCB units are now available on stem cell registries. A retrospective analysis was performed on 28 patients with benign disorders who were transplanted with 31 PD UCB units (3 double cords) with 13 thalassemias, 4 AA, 5 WAS, 2 SCID, 2 osteopetrosis, 1 sickle cell disease, and 1 unspecified metabolic disorder. Transplant characteristics: patient median age 4 years old (range 03–27); median weight 16 kg (range 4.5–43); male 57%; median no. HLA ABDR matches of 4.0 (5–6/6; 7–5/6; 12–4/6; 4–3/6); median pre-freeze TNC dose 7.7 $\times$ 10^7/kg; median post-thaw TNC dose as reported by TC 7.7 $\times$ 10^7/kg; median pre-freeze CD34 dose 3.1 $\times$ 10^5/kg; transplants outside of U.S. 68%; non-myeloablative 6%; 25% post-thaw washed (W), 61% infused without post-thaw wash (NW), 16% unknown post thaw manipulation. The median time to engraftment for ANC 500 (n = 21), platelet 20K (n = 20), and 50K (n = 18) are 17.5 days (range 11–41), 48.0 days (range 13–82), and 56.5 days (range 21–96), respectively. No major adverse event was observed in either the W or the NW group, and the median time to engraftment for ANC 500, platelet 20 K and 50 K for W versus NW were 27 versus 12 days, 58 versus 44 days, and 73 versus 53 days, respectively. The unadjusted cumulative incidence (C.I.) of ANC 500 and platelet 20 K and 50 K engraftment are 89 $\pm$ 7%, 89 $\pm$ 7%, and 87 $\pm$ 8%, respectively. The incidence of reported grade II acute GVHD was 33%, and none had grade III-IV acute GVHD. Fifty percent developed limited chronic GVHD (7/14), and so far only one patient was reported to have extensive chronic GVHD. With a median follow-up of 356 days (range 93–1100 days), the Kaplan-Meier estimates of 1-year TRM, OS, and disease-free survival were 11 $\pm$ 6%, 89 $\pm$ 6%, and 89 $\pm$ 6%, respectively. These results demonstrate that HSCT using unrelated PD UCB can be performed safely and effectively in patients with benign disorders, and post-thaw washing may delay engraftment of HSCT using PD UCB.

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ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR INHERITED DISORDERS: EXPERIENCE IN A SINGLE-CENTER

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Background: Allogeneic hematopoietic stem cell transplantation (ASCT) is a possible cure for many inherited disorders. **Methods:** We report 20 years' experience in 71 patients. The disorders include 7 immuno-deficiencies, 21 hematological disorders, 13 histiocytic disorders, 9 mucopoly-saccharoidoses, 7 metachromatic leukodystrophies (MLD), 3 adrenoleuko-dystrophies (ALD), 2 adrenomyeloneuropathy (AMN), 6 patients with Gaucher's disease, 1 Sandhoff's disease, and 2 patients with aspartylglucosaminuria. Their median age was 4 (0–39) years. The donors were 29 HLA-identical related, 27 matched unrelated (MUD), and 15 HLA mismatches. **Results:** In recipients of HLA-identical sibling grafts, none developed acute GVHD grades II–IV as against 22% in all others. The overall cumulative incidence of chronic GVHD was 17%. The 5-year survival rates were 93%, 84%, and 46% in recipients of grafts from HLA-identical siblings, MUD, and HLA-mismatches, respectively. The overall 10-year survival rate was 69%. All of the surviving patients with immunodeficiencies and hemoglobinopathies are well. Four patients with Hurler's disease are also well, apart from skeletal problems. Five patients with Gaucher's disease are between 14 and 22 years after the transplant. Two infants with MLD deteriorated, a girl with the juvenile form has stable disease and one woman with the adult form has improved. Among 4 survivors with ALD/AMN, 3 are well and 1 has dementia. Two patients with aspartylglucosaminuria have stable disease. **Conclusions:** In patients with inborn errors of metabolism, ASCT gives a high survival rate using HLA-matched donors. Beneficial effects are seen in those who are transplanted early.

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DEFIBROTIDE FOR THE TREATMENT OF SINUSOIDAL OBSTRUCTION SYNDROME IN CHILDREN: A SINGLE INSTITUTION'S EXPERIENCE

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This retrospective report describes the experience in a single institution with defibrotide in children with sinusoidal obstruction syndrome (SOS) following hematopoietic progenitor cell transplant (HPCT). Patients who underwent HPCT between February 1999 and September 2004 and received defibrotide during their admission were identified from pharmacy records. Demographic data and information regarding the clinical course of these patients were abstracted from the health records. Fourteen children (mean age: 9.3 years; range 0.4 to 18.1) received defibrotide; 10 were girls. Most patients underwent HPCT for hematologic malignancies (8/14) and received matched unrelated donor transplants (8/14). Conditioning regimens included cyclophosphamide (13/14), busulphan (7/14), and TBI (5/14). SOS was diagnosed on average on transplant day +11.4 (&minus4 to +33). Defibrotide was started on transplant day +17.5 (−4 to 40) when the mean probability of developing severe SOS was 18.1% (0.1–55.3%; N = 7). The mean initial defibrotide dose was 26 mg/kg/day (11 to 40 mg/kg/day); the mean maximum defibrotide dose was 38.2 mg/kg/day (11 to 81 mg/kg/day). The mean duration of defibrotide therapy was 16 days (4 to 37 days). Defibrotide was discontinued due to clinical improvement (9), death (3), drug unavailability (1), and neurological toxicity (1). Gastrointestinal hemorrhage was observed in 2 patients during defibrotide therapy. One of these patients continued defibrotide for a further 12 days; defibrotide was stopped in the second due to its possible contribution to neurological symptoms. Intra-cranial hemorrhage was observed in 1 patient during defibrotide therapy. The survival rate to day +100 was 79%. Defibrotide appears to be an effective and relatively safe treatment for children with SOS. Further research must be undertaken to determine the pharmacokinetic disposition of defibrotide in children, its optimal dose and its adverse effect profile.

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RAPID AND DURABLE ENGRAFTMENT AFTER UNRELATED CORD BLOOD TRANSPLANTATION (CBT) FOR CHILDREN WITH TRANSFUSION-DEPENDENT THALASSEMIA

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Umbilical cord blood (UCB) is an attractive unrelated source for hematopoietic stem cell transplantation (HSCT) of thalassemia; however, cell dosage is a critical factor for CBT. By combining strategies that maximize cell dose, promising results may be achieved with unrelated CBT in selected patients. Between October 2003 and September 2005, unrelated CBT was performed after myeloablative therapy in 10 pediatric patients with transfusion-dependent thalassemia at Chung Gung Memorial Hospital. All patients were Pesaro class 1, except for 1 who was class 2. The